MASSACHUSETTS INSTITUTE OF TECHNOLOGY

School of Engineering Faculty Personnel Record

Date: June 17, 2019 Full Name: Alexander H. Slocum
Department: Mechanical Engineering

1. Date of Birth: on file

2. Citizenship: U.S.

3.

School	Degree	Date
M.I.T.	S.B., M.E	June 1982
M.I.T.	S.M., M.E	Jan. 1983
M.I.T.	Ph.D., M.E.	June 1985

4. Title of Thesis for Most Advanced Degree:

Sensor System Design to Determine Position and Orientation of Articulated Structures

5. Principle Field of Interest:

Precision Engineering

6. Name and Rank of Other Department Faculty in the Same Field:

David Trumper, Professor
Martin Culpepper, Professor
Sangbae Kim, Associate Professor
Amos Winter, Associate Professor

7. Name and Rank of Faculty in Other Departments in Same Field:

Jeff Lang, Professor, Electrical Engineering

8. Non-MIT Experience:

Employer	Position	Beginning	End
NIST	Mechanical Engineer	June 1982	Sept. 1986
Cranfield Inst. Tech.	Visiting Professor	Oct. 1989	Oct. 1990

9. History of M.I.T. Appointments:

Rank:	Beginning	End
Assistant Professor (CE)	Sept. 1985	July 1989
Assistant Professor (ME)	July 1991	July 1992
Associate Professor (ME)	July 1992	July 1995
Associate Professor (ME, tenured)	July 1995	July 1998
Professor	July 1998	?

10. Consulting Record: (available upon request)

11. Department and Institute Committees, Other Assigned Duties:

Activity	Beginning	End
Inst. Comm. on Design in UG Education	Feb. 1987	June 1988
Inst. UG Admissions Folder Reader	Jan. 1987	Present
Inst. Committee on the Hobby Shop	July 1989	June 1997
Chairman, Inst. Committee -- Hobby Shop	June 1997	Present
Dept. Committee on Graduate Curricula	Oct. 1992	June 2004
Dept. Support Staff Cost Committee	Mar. 1994	May 1994
Pi Tau Sigma Faculty Advisor	May 1994	Jan. 2002
Dept. Faculty Search Committee	Jan. 1995	June 1995
Leader, OME 2nd Summer Design Program	Jan. 1996	Jan. 2008
MIT Educational Council	June 1996	Present
ME Strategic Planning Committee	Sept. 1996	June 1998
ME Design Faculty Search Committee	Jan. 1997	June 1998
Designated Course Professors Committee	Sept. 1997	June 2004
ME Design Faculty Search Committee	Jan. 1998	Nov. 1998
Space Committee	Jan. 2000	Sept. 2003
CalTech/MIT Voting Commission	Jan. 2001	June 2001
ME Council	Jan 2004	June 2005
Director: Experimental Study Group	Sept. 2004	June 2012
Research Administration Improvement Initiative	July. 2005	
co-chair of the Class of 1982 Reunion Gift Fund	Spring 2007	
Energy Education Task Force	Dec. 2008	June 2012
Institute Committee on Student Life	Aug. 2009	June 2012
Energy Minor Oversight Committee	Feb. 2009	June 2012
Daper Advisory Board	Aug. 2009	June 2016
Institute Committee on Student Life, Chair	June 2010	June 2012
Department Awards Committee	Spring 2011	June 2018
ME Design Faculty Search Committee	Fall 2017	June 2018

12. Professional Service:

Activity	Dates
Office of Secretary of Defense, Foreign Strategic Trade	June 1990-June 2005
Department of Justice, Bearing Tariffs	Jan.1992-Dec.1992
NIST, Technology Assessment	June 1986-Aug. 1997
International Scientific Committee of the European Union Society for Precision Engineering and Nanotechnology	Feb. 2004-present
Session Chair "Education" 4th. Intl. Conf. Advanced Engineering Design, Glasgow, Scotland,	Sept. 5-8, 2004

Vice Chair, ASME Design Education Committee	2005
Associate Editor ASME Jou. Mechanical Design	2007-2012
Department of Energy: BP Gulf Oil Spill response team	May 2010-Sept. 2010
Assistant Director for Advanced Manufacturing, Executive Office of the White House	June 2013- May 2014

13. Awards or Honors Received:

1.	U.S. DoC Development of an Advanced Robot Gripper	Feb. 1984
2.	U.S. DoC Outstanding Performance Rating	Mar. 1985
3.	SME Outstanding Contribution to FMS	Feb. 1986
4.	U.S. DoC Outstanding Performance Rating	Mar. 1986
5.	U.S. DoC Outstanding Performance Rating	Mar. 1986
6.	U.S. DoC Development of Robotic Micromanipulator	June 1986
7.	U.S. DoC Robot End Effector Patent	July 1986
8.	U.S. DoC Robotic Micromanipulator Patent	July 1986
9.	SME Outstanding Contribution to Robotics	Aug.1986
10.	U.S. DoC Bronze Medal Award for Federal Service	Dec. 1986
11.	NSF Presidential Young Investigator	June 1987
12.	Royal Society Visiting Scholar Fellowship	Aug. 1988
13.	Oak Ridge Offsite Research Fellowship	Aug. 1988

14. SME Earl E. Walker Outstanding Young Manufacturing Engineer Award, June 1993
15. ASCE 1994 Thomas Fitch Rowland Prize
16. 1994 R&D 100 Award, one of 100 best new technical products of the year (ShearDamper™)
17. 1994 International Machine Tool Show "Best of Show" award for development of Weldon Machine Tool's 1632 Gold Cylindrical Grinder (it used Slocum's hydrostatic bearings and ShearDamper technology).
18. 1994 R&D 100 Award, one of 100 best new technical products of the year (HydroGuide™)
19. 1995 R&D 100 Award, one of 100 best new technical products of the year (HydroSpindle™)
20. 1996 R&D 100 Award, one of 100 best new technical products of the year (TurboTool™ Ultra-High Speed Spindle)
21. SME 1997 SME Frederick W. Taylor Research Medal
22. 1997 R&D 100 Award -one of 100 best new technical products of the yr. (Machining Variation Analysis)
23. 1997 R&D 100 Award-- one of 100 best new technical products of the yr. (ShieldBeam™ Contactor)
24. 1997 R&D 100 Award, one of 100 best new technical products of the yr. (Kinematic Docking System)
25. 1998 R&D 100 Award, one of 100 best new technical products of the yr. (Q-Tool™)
26. Who's Who in America Science and Engineering
27. Martin Luther King Jr. Leadership Award, January 1999.
28. MacVicar Faculty Fellow, January 1999.
29. 1999 R&D 100 Award, one of 100 best new technical products of the yr. (Quasi Kinematic Coupling for Engine Assembly)
30. Massachusetts Professor of the Year Award, November 2000
31. ASME Leonardo da Vinci Award, 2004
32. 100K Competición Winner (2007, Team Robopsy)
33. ASME Machine Design Award, 2008
34. 2008 R&D 100 Award, one of 100 best new technical products of the yr. (Saber Furnace)
35. 2009 R&D 100 Award, one of 100 best new technical products of the yr. (Micro-ESR with Active Spectrum, Inc).
36. 2010 Arthur Smith Faculty Achievement Award

37. Best Paper Award: O. Yaglioglu, R Martens, A. Cao, A. H. Slocum, "Compliant Carbon Nanotube-Metal Contact Structures", Proc. of 57th IEEE Holm Conference on Electrical Contacts, 2011
38. 2014 ASME Thar Energy Award
39. 2014 Association of Manufacturing Technology Charlie Carter Award
40. 2015 Best Paper Award: J.M. Kluger, T.P. Sapsis, and A.H. Slocum, Combined offshore wind-wave-storage system power and cost predictions, NAWEA Symposium, Blacksburg, VA, June 8, 2015.
41. 2016 Best Paper Award: M.N. Haji, C. Delmy, J. Gonzalez, A.H. Slocum , "Uranium Extraction from Seawater Using Adsorbent Shell Enclosures Via a Symbiotic Offshore Wind Turbine Device", ISOPE-2016 Best Student Paper Award, Twenty-sixth (2016) International Offshore and Polar Engineering Conference, Rhodes, Greece, June 26 – July 1, 2016.
42. 2017 Member National Academy of Engineering
43. 2017 Capers and Marion MacDonald Award for Excellence in Mentoring and Advising
44. 2018 ASME Ruth and Joel Spira Outstanding Design Educator Award

14. Health & Fitness:

I am very active in general, but my emphasis for fitness and health is achieved by training for endurance events, which has greatly helped my intellectual performance. I seek to do a couple major distance events each year, and have completed 21 Iron distance triathlons, 10 ½ Iron distance triathlons, and a dozen+ marathons. *Long distance training often includes runs and bike rides with my students!*

15. Current Organization Membership:

American Society of Mechanical Engineers, Fellow
American Society for Precision Engineering, Member
IEEE, Member
Society of Manufacturing Engineers, Member
National Academy of Engineering, Member

16. Patents

Publication Number Inventor(s) Title Publication Date

1. US4606696, Slocum, Alexander, H. Mechanism To Determine Position And Orientation In Space, 8/19/1986
2. US4676002, Slocum, Alexander, H. "Mechanisms To Determine Position And Orientation In Space", 6/30/1987
3. US4685661 Slocum, Alexander, H. | Peris, James, P. Method And Mechanism For Fixturing Objects, 8/11/1987
4. US4694230 Slocum, Alexander, H. | Peris, James, P. Micromanipulator System, 9/15/1987
5. US4765754 Slocum, Alexander, H. Inclined Contact Recirculating Roller Bearing, 8/23/1988
6. US4765668 Slocum, Alexander, H. | Jurgens, Peter, A., Robot End Effector, 8/23/1988
7. US4821436 Slocum, Alexander, H., Plow System, 4/18/1989
8. US4836042 Slocum, Alexander, H., System To Convert Rotary Motion To Linear Motion, 6/6/1989
9. US4838145 Slocum, Alexander, H. | Peris, James, P., Multiple Actuator Hydraulic System And Rotary Control Valve Therefor, 6/13/1989
10. US4878002 Heatzig, Eric | Slocum, Alexander | Thurston-Slocum, Debra, Multi-Axis Dsp-Based Parallel Processing Servo Controller For Machine Tools And Robots, 10/31/1989
11. US4987526 Slocum, Alexander, H. | Thurston, Debra, System To Provide High Speed, High Accuracy Motion, 1/22/1991

12. US5023528 Saidin, Zain | Slocum, Alexander, H., Method Of Three-Phase Winding Motor Control Of Rotary Motor-Driven Linear Actuators, Linear Motor-Actuated Carriages, And Similar Systems, And Apparatus For Practicing The Same, 6/11/1991
13. US5090265 Slocum, Alexander, H., System To Convert Rotary Motion To Linear Motion, 2/25/1992
14. US5104237 Slocum, Alexander, H., Self-Compensating Hydrostatic Linear Motion Bearing, 4/14/1992
15. US5281032 Slocum, Alexander H. Self-Compensating Hydrostatic Bearings For Supporting Shafts And Spindles And The Like For Rotary And Translational Motion And Methods Therefor, 1/25/1994
16. US5472367 Slocum, Alexander, H. | Olsen, John, H., Machine Tool Apparatus And Linear Motion Track Therefor, 12/5/1995
17. US5466071 Slocum, Alexander H. High Speed Hydrostatic Spindle Design, 11/14/1995
18. US5484208 Kane, Nathan, R. | Slocum, Alexander, H., Elastically Supported Self-Compensating Flow Restrictors For Optimizing Hydrostatic Bearing Performance, 1/16/1996
19. US5533814 Slocum, Alexander, H., Low Profile Self-Compensated Hydrostatic Thrust Bearing, 7/9/1996
20. US5667204 Slocum, Alexander, Henry, Slit-Tube Replicated In-Place Constrained Layer Damper And Method, 9/16/1997
21. US5674032 Slocum, Alexander, H. | Wasson, Kevin, Tooling System And Method With Integral Hydrostatic Bearings And Turbine Power Source, 10/7/1997
22. US5678944 Slocum, Alexander, H. | Muller, Luis | Braunstein, Daniel, Flexural Mount Kinematic Couplings And Method, 10/21/1997
23. US 5,683,118 Slocum, Alexander, H., Kinematic Coupling Fluid Couplings And Method, 11/4/1997.
24. US5682795 Solomon, Todd, R. | Slocum, Alexander, H., Robotic Joint Using Metal Bands, 11/4/1997
25. US5700046 Van, Doren, Matthew, J. | Sauer, Don | Slocum, Alexander, H. | Rocki, David, Pap | Tam, Johann | Gerszewski, Larry, Wafer Gripper, 12/23/1997
26. US5700092 Wasson, Kevin, Lee | Slocum, Alexander, Henry, Integrated Shaft Self-Compensating Hydrostatic Bearing, 12/23/1997
27. US5711647 Slocum, Alexander, H., Method Of And Apparatus For Locating And Orientating A Part On A Gripper And Transferring It To A Tool While Maintaining Location And Orientation On The Tool, 1/27/1998
28. US5733096 Van, Doren, Matthew, J. | Slocum, Alexander, H. | Sauer, Don, Multi-Stage Telescoping Structure, 3/31/1998
29. US5733024 Slocum, Alexander, H. | Van, Doren, Matthew, J. | Ziegenhagen, Ii, Rodney, Scott | Sauer, Don, Modular System, 3/31/1998
30. US5743326 Slocum, Alexander, H., Method Of And Apparatus For Damping Bending Vibrations While Achieving Temperature Control In Beams And Related, 4/28/1998
31. US5758776 Slocum, Alexander, H. | Ziegenhagen, Ii, R., Scott | Slocum, Iii, Richard, W. | Muller, Luis, A., Integrated Circuit Tray With Flexural Bearings, 6/2/1998
32. US5769554 Slocum, Alexander, H., Kinematic Coupling Method And System For Aligning Sand Mold Cores And The Like And Other Soft Objects And Surfaces, 6/23/1998
33. US5778730 Solomon, Todd, R. | Slocum, Alexander, H., Robotic Joint Using Metallic Bands, 7/14/1998
34. US5784756 Slocum, Alexander, H. | Culpepper, Martin, L., Debris Cleaner With Compound Auger And Vacuum Pickup, 7/28/1998
35. US5799924 Slocum, Alexander, H. | Marsh, Eric, R. | Smith, Douglas, H., Replicated-In-Place Internal Viscous Shear Damper For Machine Structures And Components, 9/1/1998
36. US5821764 Slocum, Alexander, H. | Chiu, Michael, A., Interface Apparatus For Automatic Test Equipment, 10/13/1998

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